FEBRUARY
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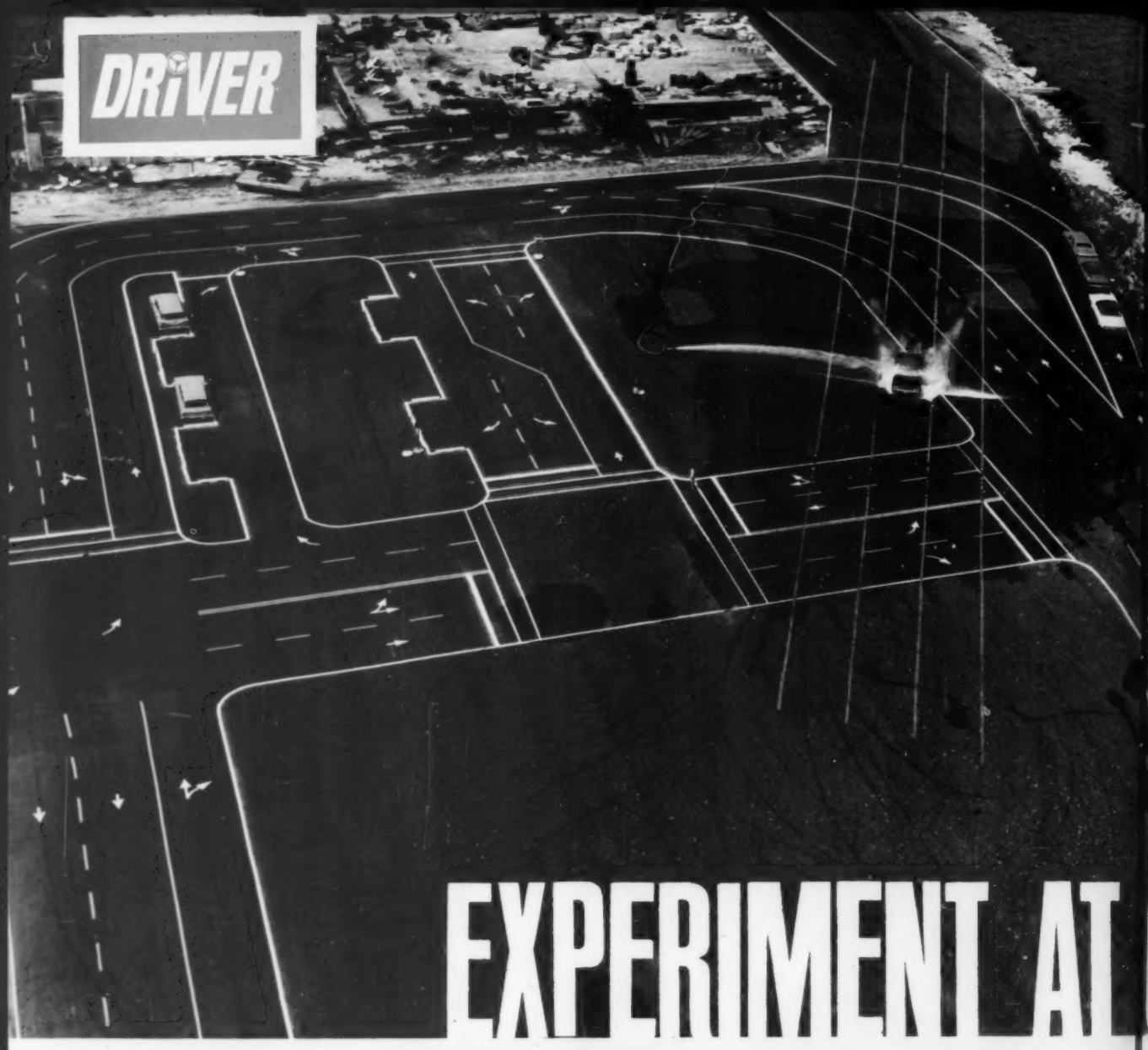
...ome P.O.W.s!

DRIVER

EXPERIMENT AT
CAPE MAY

THE BACKYARD MECHANIC

■ HAZARD
Photo Contest



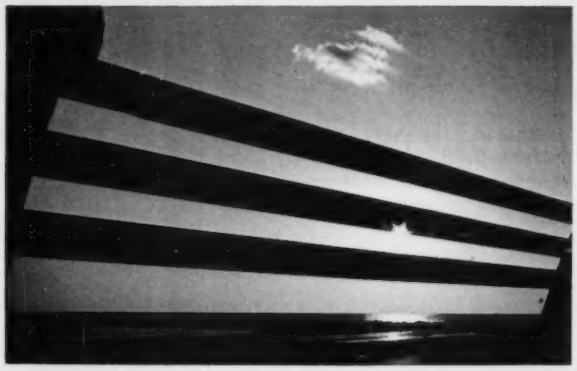
EXPERIMENT AT C

Accidents CAN be avoided. . . .

"What'd you have for lunch, kid, turtle soup?! You're too slow—should have been driving 40, not 30. . . Car Number 10, you wiped out! You just hit that car head-on!"

These seemed like unusual comments from driving instructor Ed Cook, but his purpose was clear. Unless his students, some 25 Coast Guard recruits, caught on fast, they were possibly in for some big trouble at a later date—on the highway.

Aerial view of the test course at the Coast Guard Training Center, Cape May, NJ. Here, student takes his car through a blinding stream of water at a key point in a maneuver. Some drivers blow their cool at this point and jam on the brakes, losing steering control.
(U.S. Coast Guard photo)



AT CAPE MAY

The Coast Guard teaches its drivers to survive

Already the Cape May, New Jersey, recruits were dealing with an emergency driving predicament, and not all were making it. The situation: going over a rise in a two-lane road at 40 mph you are suddenly confronted by a disabled vehicle only 50 feet ahead. You slam on the brakes, but that's not enough. You can't stop soon enough, and must make it around the obstruction in time to avoid hitting the oncoming traffic head-on (see page 3, Fig. 1). A bit difficult to accomplish, maybe, but important. The recruits who failed here would merely send rubber pylons flying. Those who failed in similar situations on the highways would probably lose their lives.

In this and many other emergency situations, Ed points out, the biggest mistake is *keeping the brakes locked up.* Once you do this it's all over, because steering ability is lost. No matter which way you turn the steering wheel, the vehicle will continue straight ahead and into whatever is in its way; in this case, the disabled vehicle.

To make it—to survive—you must *get off the brakes,* steer left, accelerate around the stopped car, brake, steer right, and accelerate into your position on the right to circumvent a head-on (see Fig. 1). A tricky maneuver requiring practice, yes, but also a lifesaver.

continued

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE
MILITARY DRIVER

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NEXT MONTH

The Radial Revolution

AFRP 127-1

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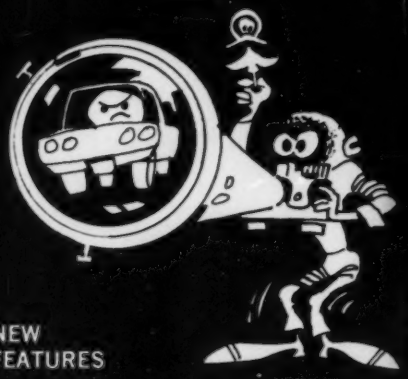
THE EDITOR SPEAKS

DOUBLE CLUTCH



NEW FEATURES

We are kicking off two new features with this issue. One is the "Photo Hazard Contest" in which we ask you to record on film some of the dangerous situations or hazards you encounter as drivers. We will publish the winning photo and descriptive caption, monthly, which best depicts the most unusual driving hazard; that is, provided we receive enough inputs from our readers.

OPINIONS

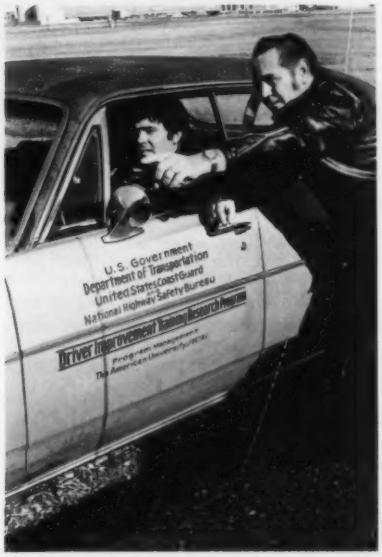
The second new feature, which we call "Opinions," is intended to establish more intercommunication with our audience on the subject of driving. We want to know what your attitude and feelings are toward driving. What bugs you about certain drivers you encounter? Why do you or do you not, wear seat belts? How do you keep your cool in heavy traffic, or what causes you to blow it? What would you do if you got into a skid? Do you ever think about the consequences of a serious accident? What do you believe might be in store for the automobile in the future?

These are some of the questions we will be discussing with our readers during our travels. We are sure the answers will make good reading and lead to some interesting commentary. If you have ideas or suggestions for the series, send them to: Editor, DRIVER Magazine, AFISC/SEDD, Norton AFB CA 92409. ●

EXPERIMENT AT CAPE MAY

(left)
Cone set up to simulate rear-end collision-avoidance exercise diagrammed in Fig. 1.

(below)
Instructors Jay Obermeyer (left) and Ed Cook emphasize accident avoidance during the 1-week course. Students also emerge with a good knowledge of their driving weaknesses.



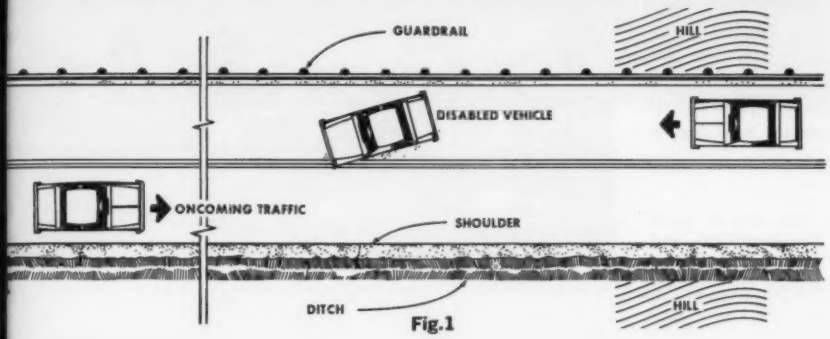


Fig.1

THE EXPERIMENT

This sort of challenge is typical of the driver improvement program at Cape May, New Jersey. Much of the course developed by the American University is based on known accident-causing situations. The "experiment" consists of dividing each recruit class into two equal groups. One group receives the training, the other does not. The driving records of both groups are then carefully monitored over their 4-year initial enlistment, with special attention to the number of fatalities and serious-injury accidents. Only the most preliminary part of the follow-up data is presently available on the 2-year-old program. Indications show, however, that the course will be an outstanding success in reducing the numbers of fatalities and serious injuries among Coast Guard personnel.

Jay Obermeyer, a second pro driver teaching the course says:

"We tell it like it is. Our track exercises are the result of the analyses of common accident-causing mistakes made by drivers. For example, there were 14,000 drivers last year who lost their lives because they failed to recover from a controlled-braking, off-the-road situation.

"Our exercise matches these circumstances, and we teach our drivers how to deal with a potentially deadly, yet fairly common, driving emergency. A driver without this 'real world' training experience has very little chance of surviving the same situation."

Ed Cook signals when to brake. Student must then turn left or right on cone-marked course. Done correctly, it's an easy maneuver. But getting off the brakes immediately is not so easy for many drivers.

(U.S. Coast Guard photo)

THE SUBJECTS

Most recruits trained at Cape May are fresh out of high school and have a year or 2 of driving experience. Despite their youth and fast reaction capability, they are in for some revealing experiences on the track. Some recruits freeze on the brake pedal when faced with a collision, or fail to make an immediate steering correction after a swerve. Others fail to make any attempt to avoid an accident, despite ample

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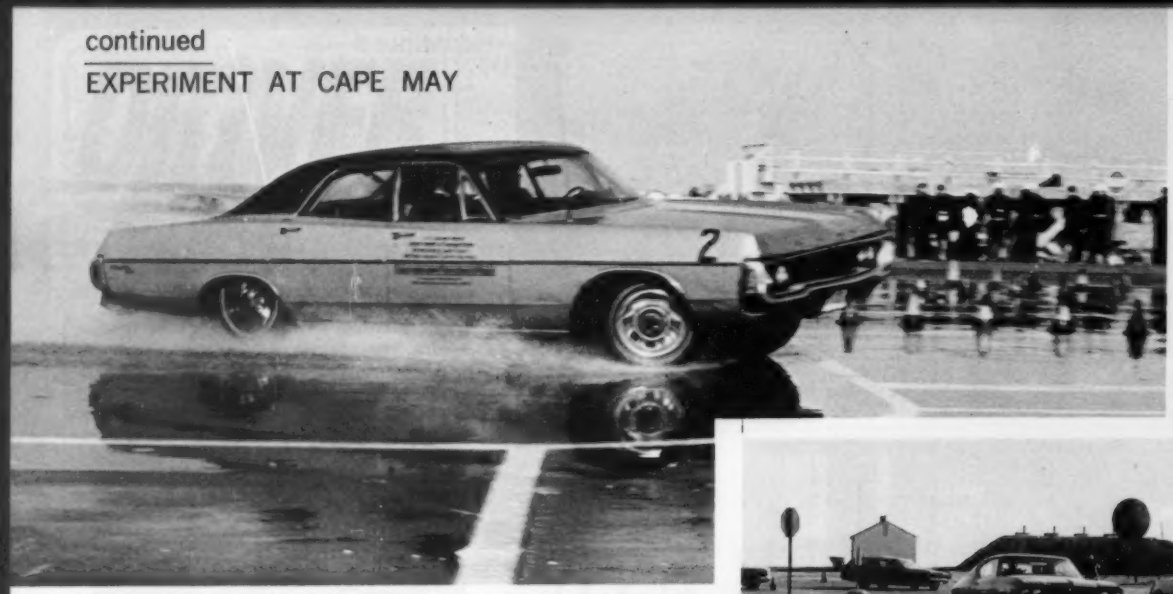

Instructor and pro driver Jay Obermeyer demonstrates how easy it is to get into a spin on wet pavement.

(right)
The "Traffic Mix" exercise includes motorcycles, cars, and all types of drivers. Students soon get a good feel for the pressures and demands of driving in traffic congestion.

"Turn on your lights; be seen!" Motorcyclists are provided with new cycles, helmets, gloves, and a full suit of leathers for the training.

opportunity. Most recruits, however, quickly absorb and adapt skills required for emergency evasion after running through an exercise several times. Each exercise is practiced at four speeds—25, 30, 35, and 40 mph. A front-seat monitor calls out the speed so the driver can keep his eyes on the road full time. Commands concerning the exercise are given by the instructors via two-way radio.

Two points are constantly stressed and demonstrated throughout the week-long course: (1) *accidents can be avoided*, and (2) *the severity of an accident can be lessened*. Students are urged to NEVER TAKE A HEAD-ON COLLISION in their future driving. The impact, if inevitable, should be taken on the side or rear of the car, ANY PLACE but head-on.

DAY IN COURT

Not all the training at Cape May is behind the wheel. A change in pace is the "Day in Court" classroom exercise. One student, the defendant, presents the circumstances of an actual accident, in which he was involved, to the rest of the class. The other class members act as a student judge, defense attorney, bailiff, jurors, and observers. The only non-student participant is the prosecuting attorney.

The object of the traffic court is two-fold; first, to determine if the subject is "guilty"; that is, at fault in the accident. The second verdict, and often the inspiration for much colorful dialogue,

At 25 mph the exercises are merely "difficult." At 40, they become a real challenge. This vehicle has just smacked squarely into a simulated bridge abutment in the off-the-shoulder recovery exercise.

You blew it! Instructor in station wagon has just confronted this student with a collision situation. As with many drivers, the student reacted by slamming on the brakes. With regular highway driving, such a reaction would most likely result in fatalities or serious injuries. Students are warned to avoid head-ons and to sustain impacts on the side or rear of their vehicles if evasion is impossible.

must indicate if the accident was avoidable. The discussion resulting from this question brings up a variety of subjects and some very probing questions from the jury: "Why were you in the left lane but not passing?" "Why didn't you move away from the erratic driver coming toward you as soon as you noticed him?". . .and so on.

An interesting trend shows up in the verdicts of these student courts. Although defendants are about equally found guilty or not guilty, only one out of ten accidents are found to be "unavoidable."

TRAFFIC MIX

According to the instructors at Cape May, their "Day in Court" exercise is unique in Driver's Education. Another unique exercise, this time on the track, is called "Traffic Mix" and involves all students, instructors, and vehicles at the same time. The track becomes the scene of heavy traffic, including motorcycles and even pedestrians. It is sort of like downtown New York City traffic in miniature. Students can hear the comments of the instructors regarding their driving over the two-way radio in each car.

The pressure is on as each driver is carefully observed for any infraction of the law or careless driving practice. Certain drivers have been designated to "cut up a bit" by the instructors, unknown to their fellow students. After a short time, tempers boil. The end result of his concentrated dose of driving under pressure, yet obeying the rules, is a better understanding of what causes accidents.

Evasion tactics are also emphasized as instructors force students into reacting to actual (slow-speed) head-on confrontations. Some of the common mistakes noted by instructors during this all-too-real training situation are:

- Failure to stop at least 4 seconds at stop sign. (A 4-second stop is required in order for a driver to properly check for traffic in all directions.)
- Stopping in crosswalks.

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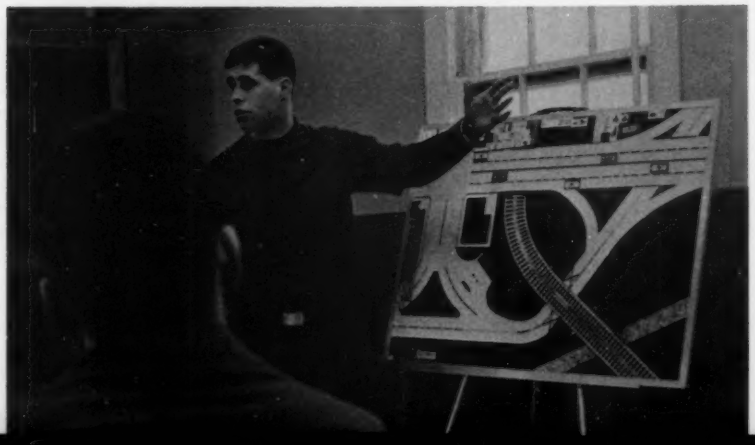
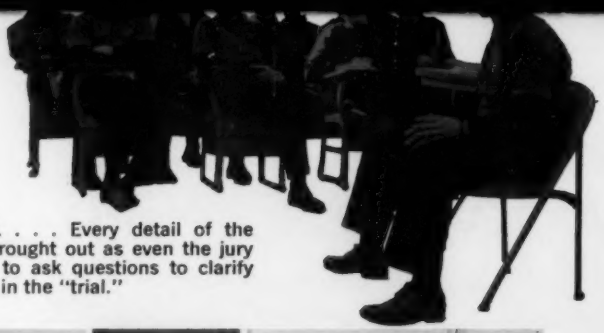


"Here's what happened. . . ." The defendant has his chance to fully explain the circumstances of an actual accident in which he was involved. Most remember the details clearly, yet are surprised at the points raised by fellow students.

The only non-student member of the "Day in Court" exercise is the prosecuting attorney shown here questioning the defendant.



On the spot. . . . Every detail of the accident is brought out as even the jury is permitted to ask questions to clarify points raised in the "trial."

"Will the defendant please rise?" The defendant and defense attorney (at trial other than shown before) hear the decision of the court. Two verdicts are delivered which indicate whether the defendant was "guilty" of being at fault in the accident, and whether the accident was avoidable.

- One-hand steering. (It is not possible to perform evasive tactics with only one hand on the wheel.)
- Improper lane changes.
- Failure to check rear-view mirror (to possibly evade a rear-end collision).
- Not yielding to traffic entering on a freeway on-ramp.
- Stopping, instead of evading, when confronted by a head-on collision.

Motorcycle riders in the traffic mix are cautioned to maintain proper lane positions, to use their turn signals and rear-view mirrors, to brake before turns, and above all to be "visible." Riders are taught to be sure they are seen by other motorists at an intersection by blinking their lights, honking, shouting, or any other means of attracting attention.

RIGHT-FOOT BRAKING RECOMMENDED

In training over 3,000 recruits, driving instructors at Cape May have found that left-foot brakers cannot react as quickly in an emergency situation as can the right-foot braker. For this and several other reasons, right-foot braking is the method advocated at Cape May.

OFF-THE-SHOULDER RECOVERY

Accidents in which a driver goes off the pavement, then loses control, are very common. At Cape May, students learn to steer their way through the situation after initial hard braking. The setup is similar to the situation described earlier, in which the driver must make it around a disabled vehicle before running head-on into the oncoming traffic. In the "Off-the-Shoulder Recovery" exercise another element is included. Rather than going around the disabled vehicle to the left, the driver must use the shoulder of the road to the right. This calls for hard braking, immediately releasing the brakes to get out of the skid (you are still moving toward the disabled vehicle at about 35), then steering off the road into the dirt, and around the vehicle without hitting an abutment just ahead on the right.

The importance of not staying on the brake too long is again made obvious with this exercise. Also, many drivers are confused by the difference in handling characteristics off the pavement. During this exercise, especially at 40 mph, it was not uncommon to hear comments from the instructors which range from "Good job!" to "You just hit the stalled auto, glanced off the guard rail, and hit a car head-on!"

STAYING AT THE CONTROLS

While DRIVER was out on the track watching pylons fly during first runs on the off-the-road recovery exercise, Ed Cook commented over his shoulder:

"You know, these guys learn the value of lap belts and shoulder harnesses FAST. They couldn't even make a run through those pylons at 35 unless they were cinched in tight to stay at the controls.

"I take non-believers through some 180-degree skids and other emergency procedures at the beginning of the course. After that, we find that none of our students have to be reminded to strap themselves in."

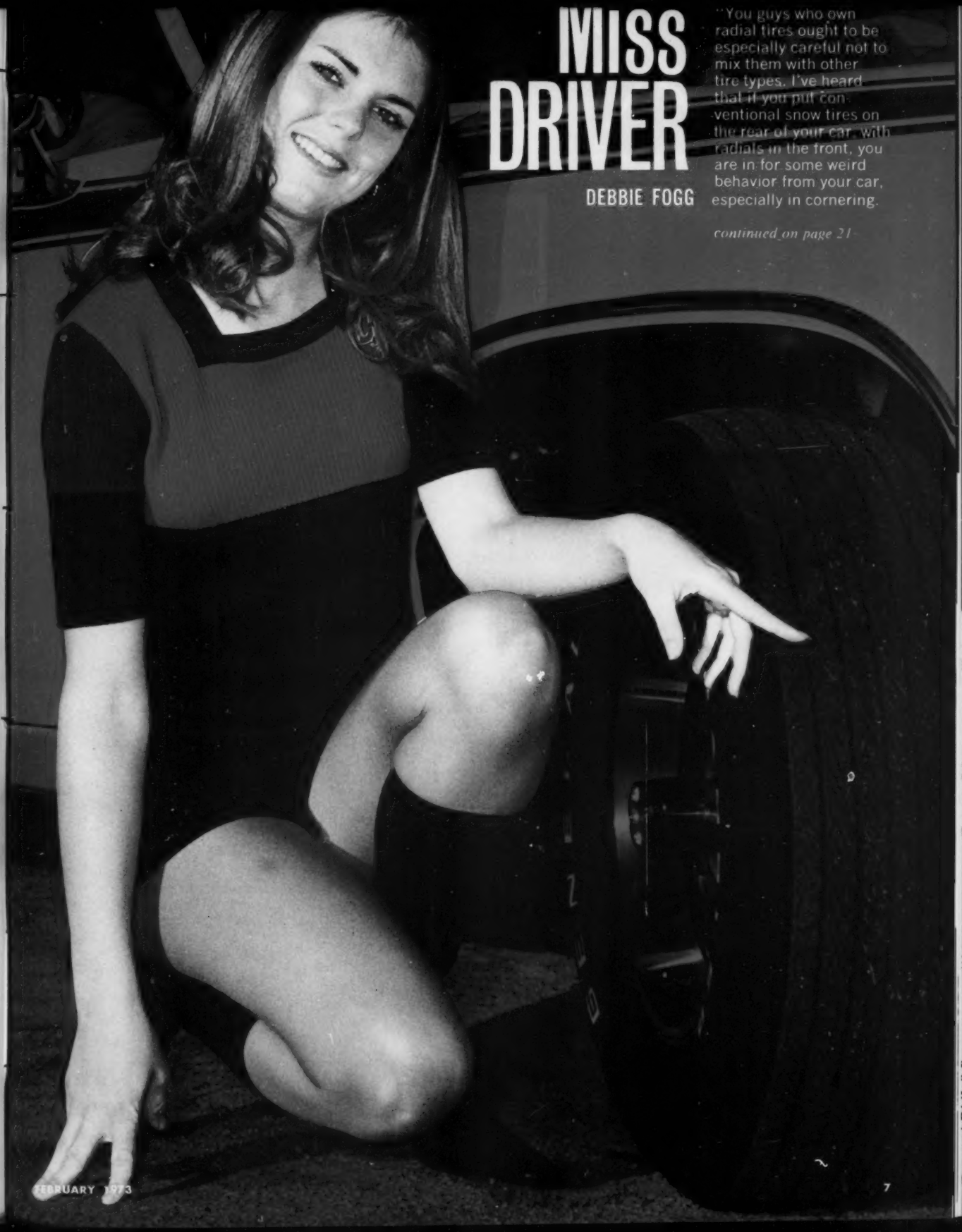
STUDENT REACTION

DRIVER did some informal rapping with the students to find out their opinions of the training. Here are some of their comments:

"The course is fantastic—especially the track work. I didn't think it would be like this. We're given the chance to get behind the wheel and do things you normally can't do while driving. You get a real feel for how a car handles. I thought it would be all movies and stuff, and was really surprised by the driving."—Dean Schaal, 19.

"This is the kind of stuff you see in drivers' ed movies but never expect

continued on page 21



MISS DRIVER

DEBBIE FOGG

"You guys who own radial tires ought to be especially careful not to mix them with other tire types. I've heard that if you put conventional snow tires on the rear of your car, with radials in the front, you are in for some weird behavior from your car, especially in cornering.

continued on page 21

CLICK!

10001

YOUR CAMERA

HAZARD PHOTO CONTEST

Driving hazards are everywhere, but many drivers ignore or simply fail to see them. We are asking our readers to be on the lookout for unusual hazards and, if possible, photograph them for submission to DRIVER. If the response warrants continuation of this series, each month we will run what we consider to be the best photograph of the most unusual hazard.

Black-and-white photos are preferred for use in DRIVER. Also, please include a description of the hazard you have pictured. Photos used will be returned, if so requested, approximately one month after publication in DRIVER.

To start things off, we are printing the photo taken by our staff photographer. In this case the hazard is a hedge carelessly planted in such a way as to make this a blind intersection for drivers approaching from the angle shown, or from the direction of the imperiled bicyclists. There is a tendency for drivers coming from the right to cut the corner, making it even more likely there will be a collision here any day now. •

DON'T "BLOW I

DRIVER discusses motorcycle cornering techniques

A "How Goes It?" item in this issue, which deals with a motorcycle rider losing it in a curve and losing his life, brings out a very essential point. Many bikers, both experienced and novice, are wasting themselves very foolishly and unnecessarily.

Let's take the example of our unfortunate rider who lost it in a sharp right-hander. Granted—he violated a lot of rules of safe riding to get into the predicament. But, had he kept his cool and utilized the proper riding technique in the corner—instead of jamming on the brake, he would probably be riding today. We'll get into that specific technique after discussing cornering in general.

A corner, broken down into its simplest elements, is a series of lines—and should be ridden that way. On a long, sweeping curve for instance, the corner can be ridden most quickly, easily, and safely in a series of two lines, or slight arcs, using the widest line.

A right-hand curve should be entered at its highest point (near the center line on a two-lane road)—the bike should be angled into the turn in a smooth arc so the inside point is reached halfway through the corner. This will also keep you out of the oil, gas, water, sand, and such that are generally spilled at the apex. The bike should then be gradually drifted toward the outside edge of the curve, so you exit into the straight near the center line. (See diagram 1).

The best way around a curve (on pavement) is usually the line with the slightest turning angle (greatest radius) that provides the least resistance at a given speed, as shown in the previous example. Anything you can do to increase the radius of a curve decreases the resistance at a certain speed—and increases your chances of making a curve if you entered at too great a speed (see diagram 2). Since this course keeps you away from the centerline while in the curve, you can nearly always take a wider line (increase its radius) and safely navigate the curve after you've entered—this is where our friend blew it; but with a little practice, you can master the technique.

When you get into a corner too fast—essentially the inside angle of the curve is so great at the speed you're traveling, you can't lean your bike with enough angle to make the turn. You'll either be forced to the outside by inertia, go off the road on the inside, or ground a pipe, engine casing, or peg, and unload as our unfortunate rider did.

This situation is where the proper cornering technique can really pay off. Put yourself in the position the cited rider found himself in. You enter a sharp right-hander—you're leaned into a corner as far as possible—immediately you realize you can't make it. You can't really slow down; if you hit the brake at your lean angle, you will lose the rear end and unload. You should brake in a corner only as a last resort—and then only when the bike is not leaned into the turn.

Since you can't really reduce your speed, the only way to make this corner is by getting a wider line by increasing the radius, which will have the same effect as a reduction in speed. Increase the radius by simply straightening the bike up and angling

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left as far as possible before leaning back into the curve (see diagram 3). This may sound tricky if you haven't tried it, but it's easy after you get used to it.

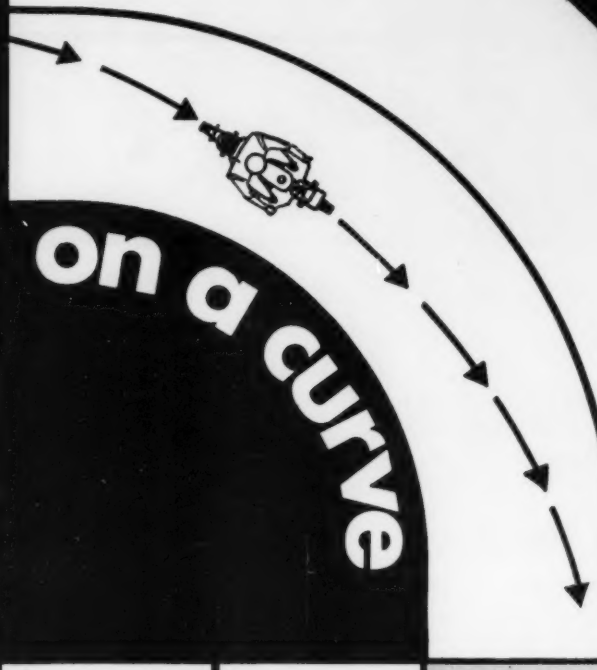
If the corner is still too tight, immediately straighten up and take a wider line. As you straighten up, you can also apply the brakes, if necessary —but don't forget to release them before leaning back into the corner. Navigating a left-hand curve calls for essentially the same tactics, with the exception of approaching the curve on the extreme *right* side of the road, angling left to the inside point (correcting to the right if a wider arc is needed), and exiting on the far right side of the road.

The principle applied here is much the same as when you angle out slightly before pulling into a narrow driveway. Angling out reduces the turning angle and increases the radius—thus making it easier to turn into the tight driveway.

You can continue this angling in rapid succession until you make the curve, or reach the point of no re-

continued

Diagram 1
Proper cornering line straightens the curve by increasing the turning radius.



on a curve

Diagram 2
Narrow line decreases the turning radius—creating more cornering resistance.

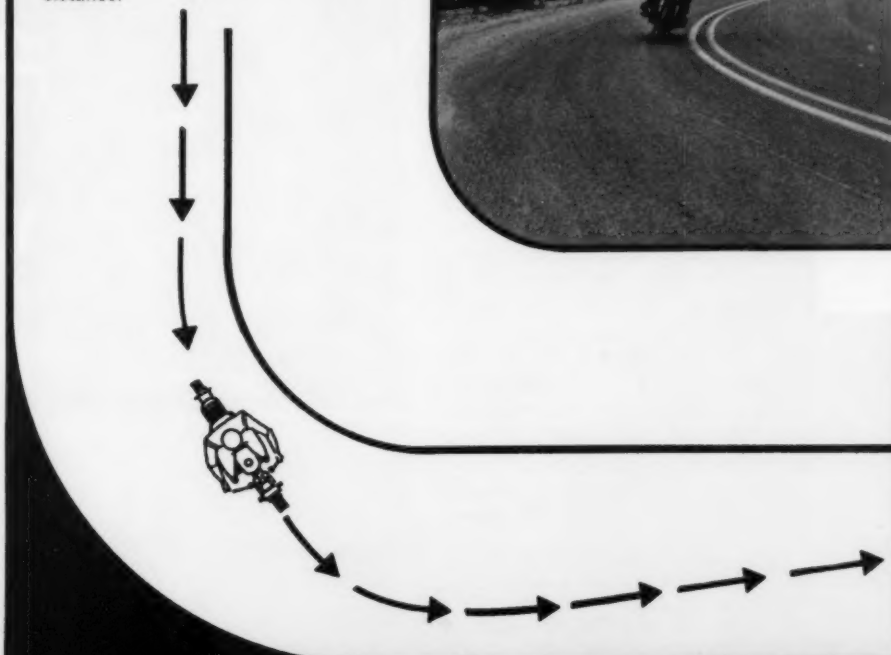
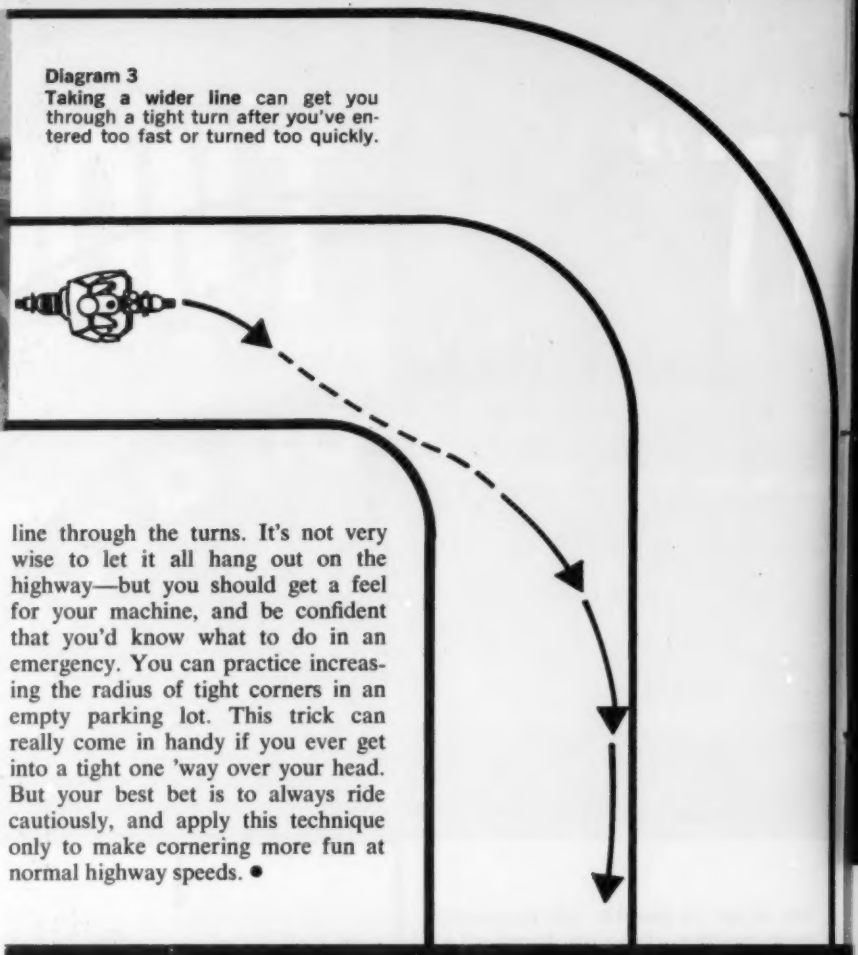


Diagram 3
Taking a wider line can get you through a tight turn after you've entered too fast or turned too quickly.



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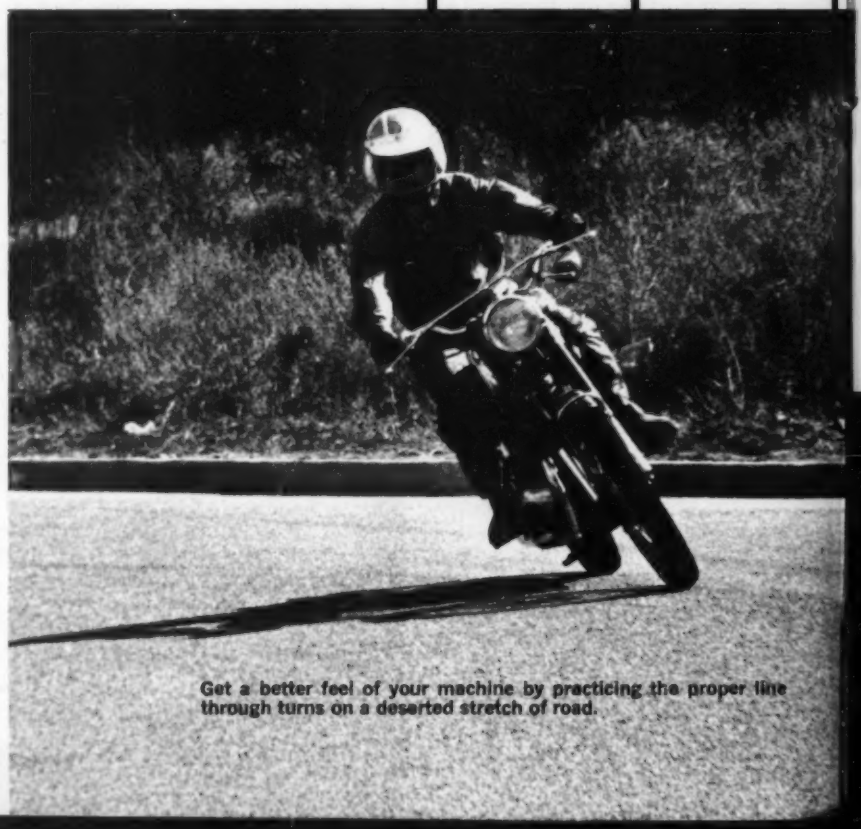
DON'T "BLOW IT" ON A CURVE

turn and have to unload. Even if you lay it down, this procedure will at least slow you before biting the pavement. Remember to get away from the bike as soon as possible if you unload.

This cornering technique is the basic system used by professional motorcycle road racers to get through corners at maximum speed. DRIVER recommends you practice this technique; not to attain more speed, but greater efficiency. It is the safest and easiest way to corner—and knowing how to change your line once in a corner can be a lifesaver.

Before you go into the curve, remember to compensate for your bike's tendency to "out-track"* (your bike turns momentarily in the direction you steer, only to make a sweep in the *opposite* direction). Otherwise, your bike might be thrown off balance and into the gravel, or into the oncoming lane of traffic. As with widening the radius after you have entered the turn, the secret lies in practicing the art of first steering in the direction opposite your turn—in a fast, smooth, right-left or left-right movement. This is automatically taken care of when you straighten your bike and grab a wider arc after you've entered the turn.

Find a good stretch of deserted road and practice using the correct line through the turns. It's not very wise to let it all hang out on the highway—but you should get a feel for your machine, and be confident that you'd know what to do in an emergency. You can practice increasing the radius of tight corners in an empty parking lot. This trick can really come in handy if you ever get into a tight one 'way over your head. But your best bet is to always ride cautiously, and apply this technique only to make cornering more fun at normal highway speeds. ●



Get a better feel of your machine by practicing the proper line through turns on a deserted stretch of road.

** "Out-tracking" was explained in detail in DRIVER's "Showdown at Mira Loma" (p. 12) and "Ontario's Best Race" (p. 1), May' 71 and Jan '72 issues.*

DRIVER kicks off a new interview feature

OPINIONS

As stated in "Double Clutch," page 2, the purpose of this new feature is to get some feedback from you—the reader. We want to know how you feel about various aspects of driving. Most of what driving is all about involves attitudes and opinions. By finding out how other drivers think and feel, we hope you will appraise your own attitudes on subjects pertaining to driving.

To get things rolling, we went out and asked some individual service members the following questions:

1. What bugs you most about other drivers?

2. What do you think about seat belts?

3. When you drive, do you ever think about the possibility or consequences of an accident?

4. What comments do you have about the push to require more safely constructed cars?

5. Insurance companies charge higher rates for younger drivers in the high-risk age group. What comments do you have on this?

The results of our questions appear on pages 14 and 15. Responses have not been altered in content, only edited for readability in some cases. Opinions expressed are those of the individuals questioned, and do not necessarily represent the position of DRIVER.

We hope you find this series interesting and stimulating. Above all, we hope it gives you a chance to get into the other drivers' heads as well as your own, every time you drive.

continued

continued

OPINIONS

"I rolled three times . . . I'm sure the seat belt saved my life."

Amn RANDY DURHAM ■ 21

Home: Ft Oglethorpe GA

(1) "People driving too slowly on freeways bug me. Some go 20 in a 70-mile-an-hour zone! Also, some people drive too slowly on freeway entrance ramps, which is where you should build up speed.

(2) "I always wear seat belts! Once I rolled three times when the king pin broke and the wheel of my VW van came off. I'm sure the seat belt saved my life. I got only a few cuts.

(3) "In some situations I worry about having an accident—but I usually don't like to think morbid thoughts.

(4) "I'm all for safer cars. A lot of people complain that safer cars won't look good—but I've been in two wrecks and would rather have a safer car.

(5) "I know the majority of people in accidents are under 30. But I think it is a few people in this group having a lot of the accidents. Insurance rates are entirely ridiculous and should be based on individual performance."

OTHER COMMENTS:

"I think cracking down on DWIs is the thing to do. I mean, like I enjoy drinking, but always make sure I don't drive afterward. If we get all the drunks and old cars off the road, and use safer cars, the fatalities would probably drop by one-half. Also, we need better driver ed.

"You've got to watch out for the other guy—I know everyone says that, but it's true!"

"I think young people are in favor of a safer, more practical car."

SSgt EILEEN KOLBO ■ 24

Home: La Palma CA

(1) "People who don't signal when changing lanes; tailgaters. Also, litle old ladies going too slowly drive me mad.

(2) "I always wear seat belts, for crash protection.

(3) "I don't really think about having a crash—but I worry about a blowout or other failure. A friend of mine had a blowout and went over the edge of a coastal highway. Now I really slow down on mountain roads, check my tires, and keep my car properly maintained.

(4) "I think young people are in favor of a safer, more practical car. They are not that concerned about how it looks.

(5) "Higher insurance rates for young people are justified, but not as high as they make them."

"We need mass transit . . . we need to get drunks and unfit old people off the road."

AIC VERNON McKENNEY ■ 21

Home: Covina CA

(1) "Tailgaters bother me the most, and they are everywhere.

(2) "I think belts are too confining. I don't really need them in my car because I'm large and the steering wheel holds me in. I'd probably wear them in a larger car. I've rolled my car and been involved in a head-on without being injured.

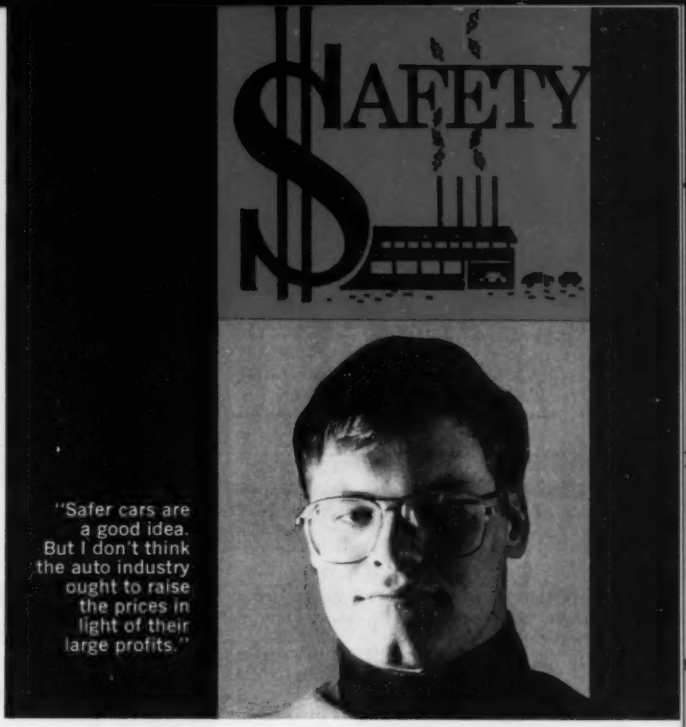
(3) "I always think about having an accident. I had six accidents within a period of 6 months. I really learned about defensive driving, and now keep a safe distance in traffic. I hate being crowded by other cars.

(4) "I'm all for safer cars—but it costs too much for safety. Better driver education is the best bet for reducing accidents. Driver ed should begin at 15, and licenses shouldn't be issued before 18.

(5) "Insurance is too expensive. It should be based on your personal record as to how many accidents you cause."

OTHER COMMENTS:

"There are more people on the road than need to be. We need mass transit systems, and also need to get drunks and unfit old people off the road."



"Safer cars are a good idea. But I don't think the auto industry ought to raise the prices in light of their large profits."

Cadet DAVID MILES ■ 20

Home: Redlands CA

(1) "Drivers who fail to take their turns at intersections, or who take up your following distance on the highway. I'm also bugged by people who stop on on-ramps to the freeway. Then, there are those nuts who change lanes without first looking over their shoulder—and almost hit you. It's wrong to depend entirely on your mirrors.

(2) "A seat belt saved my life. I once fell asleep while driving, and hit two lamp posts and a tree. My only injury was some teeth knocked out. The California Highway Patrol said wearing the lap belt saved me.

(3) "Yes, I think about having an accident. Whenever someone does something dangerous on the road near me, I have a flashback to my accident. I'm a lot more careful now—especially about being rested and always fastening my seat belt.

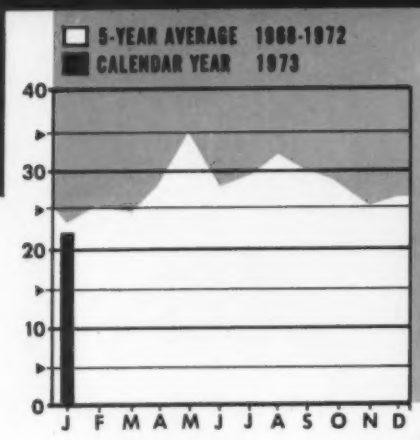
(4) "Safer cars are a good idea. But I don't think the auto industry ought to raise the prices in light of their large profits. Why should the buyer take the big hit?

(5) "I can see why the insurance companies charge high rates. It just seems unfortunate youth has to pay more when they have less."

OTHER COMMENTS:

"Young drivers are overconfident. Most think they drive very well. Sometimes it takes a bad accident like mine to make them aware of the danger from themselves as well as from other drivers."

What are **your** coments on these matters? We would be interested in hearing them. Write Editor, DRIVER Magazine, AFISC/SEDD, Norton AFB CA 92409. ●



TOTAL FATALITIES as of 31 JAN:

CY 1973: 22

5-YEAR AVERAGE: 23

A monthly recap of selected accidents—presented solely in the hope some will benefit from the unfortunate experiences of others

HOW GOES IT?

INEXPERIENCED CYCLIST

Rank: Amn Age: 19
Type vehicle: 1968 Honda motorcycle 305cc

The Amn was riding a used motorcycle, recently purchased, and had little riding experience. The road was steep and winding, and he was driving uphill at 40 mph in a 25-mph zone.

Instead of slowing before entering an 80-degree, unbanked right turn, the Amn braked hard enough to lock the rear wheel. The bike left a 15-foot skid mark, and two parallel gouge marks were made by the rear brake pedal and right passenger foot-rest. The Amn suffered fatal ruptures of his kidneys and spleen after he was thrown over the embankment and landed on his back.

Probable cause: Excessive braking, grounding of foot peg, and loss of control, all a result of excessive speed and failure to employ corrective measures.*

Possible contributory factors: Panic braking; inexperience.

**Ed Note: See page 10 for a method to maintain control under similar circumstances.*

FATAL SKID

Rank: A1C Age: 28
Type vehicle: 1961 Buick 2-door

The Amn drank beer with a friend until early morning, then headed out in a 440-cid Buick he had purchased the week before.

As he approached a well-marked left-hand curve while driving over the speed limit, he started to brake. The tires lost traction, and the car sheared a utility pole, then flipped end-over-end for 120 feet and landed upside down. The driver's head was fatally crushed between the steering wheel and the car top, and his civilian passenger suffered a fractured foot. Investigators concluded the driver's injuries would have been lessened had he been wearing safety belts.

Probable cause: Impaired thinking resulting in loss of control due to uncontrolled braking.

Probable contributing factors: Fatigue; unfamiliarity with new car; control minimized by non-use of seat belt.

FATAL JACK

Rank: 1st Lt Age: 22
Type vehicle: 1962 Avanti

The Lt was crushed under the left side of the Avanti, from which the front wheel had been removed.

A scissors jack had apparently slipped out from under the left side of the frame, behind the front wheel well.

Probable cause: Faulty or improperly positioned jack.

Contributing factor: Failure to use safety stand and wheel chocks.

SPEED, ALCOHOL, AND ILLEGAL MOD

Rank: Sgt Age: 22
Type vehicle: 1971 Honda motorcycle 450cc

The Sgt had been drinking, and his bike was equipped with an illegally extended fork and Z-bar. He made a fatal attempt to pass while speeding on a curve, at night, and the Honda impacted a utility pole.

Probable cause: Faulty judgment resulting in loss of control during a high-speed pass on a curve.

Possible contributing factor: Alcohol, illegal modifications.

BALD TIRES, ALCOHOL AND SPEED

Rank: A1C Age: 19
Type vehicle: 1968 Rambler, 2-door

The A1C drank at a roadside bar from 1830 to 0100 next morning, then skidded his car at high speed into a bridge abutment.

The vehicle became airborne, coming to rest in 3 feet of water, 32 feet from the point of initial impact. Since the driver was not belted in, he was ejected onto the creek bed and killed. Tire marks indicated he had driven onto the shoulder and back before skidding into the abutment.

Probable cause: Impaired judgment resulting in excessive speed for conditions.

Probable contributing factors: Minimal control without seat belt; three bald tires; alcohol; fatigue.

THE LAW AND THE AUTOMOBILE

LIABILITY OF MILITARY VEHICLE OPERATORS

In July 1971, the Air Force Chief of Staff received a letter from the President of the National Safety Council concerning the fine driving record of the Air Force military motor vehicle operator.

The letter cited the GMV operators for having driven 130,000 government vehicles *more than 300 million miles in a 6-month period without a fatality.*

Then, in January 1973, an ALMAJCOM message from the Chief of Staff, USAF, read in part:
"A REVIEW OF THE OCTOBER 1972 ISSUE OF THE USAF GROUND ACCIDENT WORLDWIDE ACCIDENT SUMMARY PUBLISHED BY THE DIRECTORATE OF AEROSPACE SAFETY REVEALS THAT THE GOVERNMENT MOTOR VEHICLE ACCIDENT RATE IS CONTINUING ON AN UPWARD TREND. . . ."

The CSAF message included methods to reverse the unfavorable trend, and ended by stating:
". . .WE CANNOT AFFORD TO LOSE VEHICLES THAT ARE UNLIKELY TO BE REPLACED, NOR CAN WE AFFORD THE EXPENDITURE OF LABOR HOURS OR OPERATIONS AND MAINTENANCE MONEY IN THE REPAIR OF VEHICLES DUE TO AVOIDABLE ACCIDENTS. OF GREATER CONCERN, OF COURSE, ARE THE SIX OPERATORS WHO LOST THEIR LIVES IN THESE ACCIDENTS. . . ."

But how does this unfortunate upward trend in GMV accidents and fatalities tie in with "The Law and the Automobile"? Well, it has to do with the Government Driver Law enacted by Congress as an amendment to the Federal Tort Claims Act. The amendment protects government drivers from personal liability arising from operation of motor vehicles but only if it is *within the scope of their employment.*

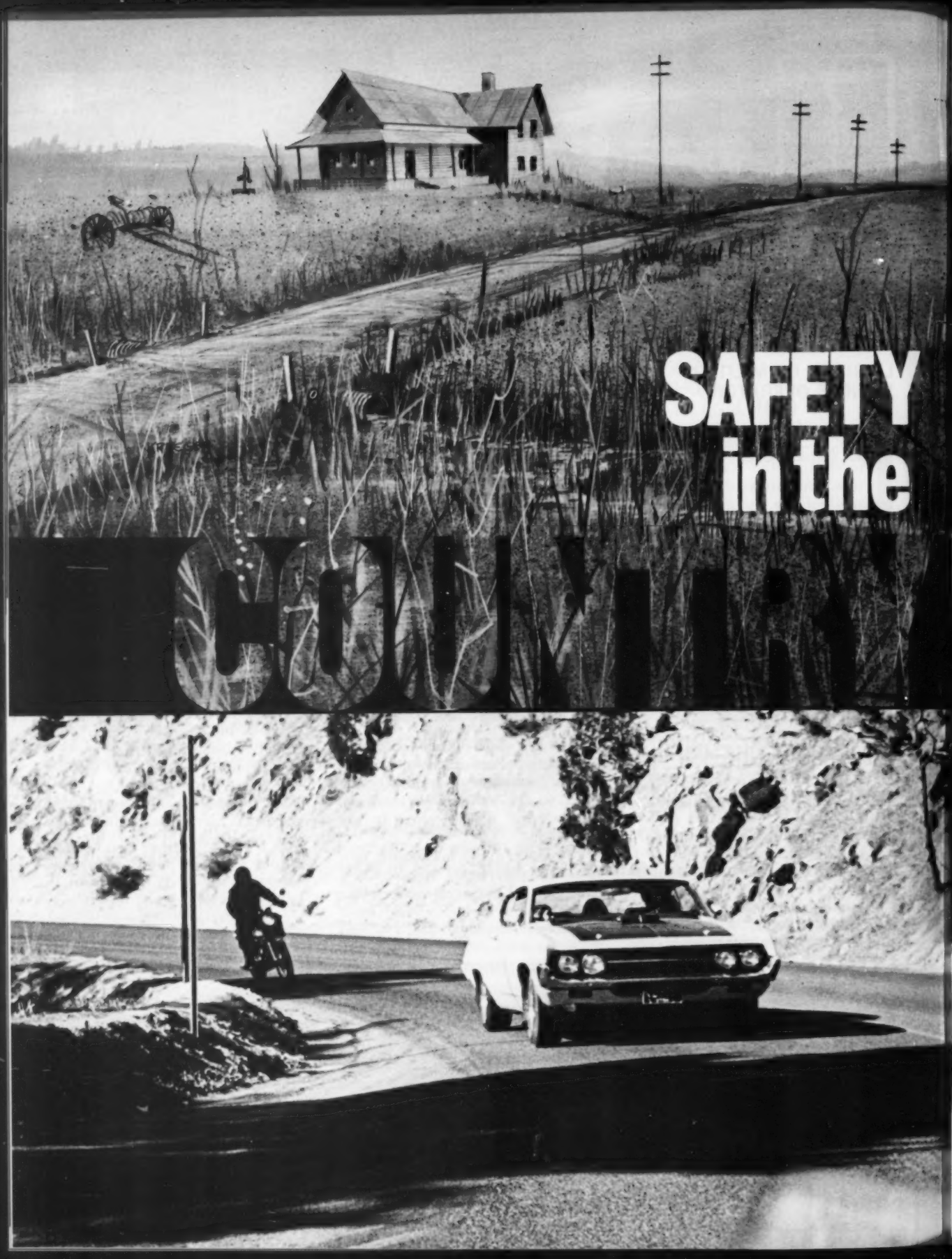
While the increased accident/fatality rates referred to before relate only to government-owned vehicles, the problem of liability can arise from a variety of situations. Among these are the operation of contractor vehicles, U-DRIVE vehicles, and privately-owned vehicles used in the line of duty.

The Driver Law Amendment indicates the government is exclusively liable for all damages incidental to the operation of any vehicle by a government employee acting within the scope of his employment. In using other than government-owned vehicles, the government is covered by the omnibus clause contained in the driver's insurance policy as well as by the rental or contracting agency's insurance policy.

Each day, many military and civilian employees operate rental vehicles for which reimbursement of the fees is authorized in TDY orders. In these situations, protection for the driver is usually covered by the provisions of an automobile public liability and property damage insurance policy (referred to in the automobile agreement).

So, the government vehicle driver is afforded protection by the Driver Law Amendment, and is not personally liable for accidents which occur within the scope of his employment. However, the driver should stick strictly to official business while operating the vehicle; otherwise, he may find himself in the lonely position of paying for an attorney to defend him, as well as being held liable for accident damages.

The point to remember is that, even though the government is "liable" as owner or named insured rentee, the driver can be held responsible for injuries and/or damages resulting from carelessness or unauthorized acts—acts which do not fall within the purview of the Driver Law Amendment's *scope of employment* provision. ●


SAFETY
in the
COUNTRY

INTELLIGENT MOTORCYCLING part VII

A motorcyclist's heaven is an infinite ribbon of smooth tree-lined country road, with occasional hills and an interesting assortment of banked curves. It is perpetually sunny days, blue skies, and wandering clouds. Vagrant breezes tug at the rider's face, and the landscape swirls by. Man and machine soar over hill crests, swoop down into valleys, and glide into banked turns, giving the rider a feeling of unlimited power.

To match the "heavenly" environment, and to gain the most complete enjoyment of this wonderful experience, the motorcyclist should prepare both himself and his machine. Every component of the cycle should be maintained at peak standard. The rider should be in top physical condition and equipped with as much knowledge of country riding as it is possible to acquire.

Adapted from CYCLE WORLD. Permission from Bill Kaysing and the Parkhurst Publishing Co gratefully acknowledged

(above)
Experienced rider stays close to center to see more of right-hand curve area.

(left)
This cyclist plays it safe on turn of frosty road.

There are pleasant surprises in the country, but there are also a few unpleasant ones in the sometimes not-so-heavenly environment in which you'll be riding. The hay bale that drops off the truck ahead, the deer that cannot read the "DEER CROSSING" sign, and the road that suddenly becomes unpaved, all take a toll of cycle riders each year. There are hazards in the boondocks that no one has yet seen, but the least we can do is apprise ourselves of a few that have made their appearances to date. Take, for example, a rural risk that you cannot even see. . .the wind.

by
BILL KAYSING

ALLOW FOR THE WIND

A rider is droning along a farm-country road with a strong wind blowing at right angles to his direction of travel. He subconsciously corrects for wind pressure by leaning into the wind. But, what happens when he comes to a fence, a hedge, or a closely spaced row of trees. Suddenly, compensating for wind pressure becomes unnecessary. If the road surface is also slippery with blown sand or dirt, the rider could lose control.

The solution to this problem is simply *anticipation*. The truly expert and intelligent motorcycle rider will continually perfect his ability to think and plan ahead. He is constantly alert to all the signs and evidence that indicate a dangerous situation exists or is developing. Incidentally, the reverse of the incident just described can also be perilous. This occurs when you emerge from the wind-protected area and are hit with a 45-knot blast of air.

Riding your cycle with the wind from directly behind or ahead can also compound the normal risk. With the wind ahead, the aerodynamic characteristics of your machine become highly significant. If your cycle tends to become unstable at high speed, slow down when headed into gusts. The sudden increase in "airspeed" from 55 mph to, say, 75 could cause loss of control. Tail winds are even more treacherous. Assume that you've been riding a certain country road for years. You are likely to be judging your speed into a particular corner more by engine sound and forward air pressure than by your speedometer. Then, one day, a 20- or 30-

continued

One of many obstacles you'll find.

mph tail wind springs up. Your engine will sound the same, although your actual road speed is now greater . . .due to the "help" from the tail wind. The usual pressure of wind on your body is diminished appreciably. Your brain (reacting like the computer it is) assimilates the usual and routine information, but may not be aware of the subtle fact that your speed is perhaps 10 mph greater than normal.

Result? You are approaching "old lefty" at an unsafe speed. When you find yourself in the turn at a faster-than-normal speed, you could be forced into a spill or on a right-hander, into the opposite lane of traffic.

COUNTRY-TYPE MOTORCYCLES

For riding in the country, the experienced rider will select a machine that has sufficient horsepower to ensure safe touring. Small, low-powered cycles are great for shopping or cow-trailing, but are at a distinct disadvantage in the wide-open spaces. Many states bar cycles from freeways and turnpikes if they do not develop a certain minimum horsepower. California requires 15 hp. There is a good reason for this. Any vehicle that cannot keep up on our modern superhighways is a hazard to its operator and to faster vehicles on the road. A bike traveling too slowly can force the drivers into unsafe passing attempts, and could result in the slowpoke being rear-ended. Furthermore, there are times when a motorcycle needs power to keep its rider out of trouble. In passing, for example; it is advantageous to be able to pass quickly at any time, and then promptly wheel back into the right lane. If you are riding an under-powered machine, it will take longer to get around. Meanwhile, you are in a highly vulnerable position.

What should be your choice for a rural road machine? Your machine should have a top speed of at least 85 miles per hour and accelerate to this speed promptly. Selecting a machine with a top of 85 mph does not necessarily mean that you will ever travel at this speed, but it does give you the option of using the available horsepower for passing and emergency situations. Today's highways demand that you maintain a fairly fast clip, at least 55 or 60 mph, to stay with the traffic, and it is both unwise and dangerous to be peaked out at this speed. So get yourself some horses before you join the weekend race into the fresh air and wide-open spaces.

TYPES OF COUNTRY ROADS

The infinitely variable characteristics of country roads should be evaluated by the intelligent motorcyclist. Many roads are poorly planned. . . some were not planned at all, but simply evolved from cowpaths and foot-trails. Here you'll find off-camber banking, hairpin turns, and other pitfalls for the unwary cycle rider. In contrast, there are divided superhighways which level out the land from one horizon to the other and are arrow-straight. They look safe, but this is deceiving. Statistics indicate that most non-city accidents occur on straight, rather than hilly or winding roads.

TURNPIKES AND FREEWAYS

About the only difference between superhighways in the city and those in the country are the number of on- and off-ramps and the amount of traffic. While the rider may be extra alert in the city, there is a tendency to relax attention as traffic thins out. This is a mistake, since the same high-speed hazards exist; they are merely reduced in number. Cycle riders, like pilots of light planes, must be constantly alert for clues which warn of potentially dangerous situations.

A rider passing a car at the legal limit notices two stray dogs frolicking on the right side of the freeway. Instantly, he banks sharply to the left and skims along the edge of the pavement. The cyclist has realized that the dogs could enter the roadway and cause the automobile driver to swerve to the left just as the cycle passes. Had the cycle rider not anticipated this, and the car had swerved to avoid the animals, he could have been hurt.

CURVES AND DIPS

In the course of a single day, country cycle riding may involve long, gentle curves, and some with hairpin radii of less than 20 feet. The most important single rule to follow in banking around any turn on a cycle is to go into it at a speed which will allow complete control plus a generous margin for errors. Just how much margin depends on a number of variables including capabilities of the cycle, camber of the curve, and condition of tires and road surface. Ironically, various slippery substances; oil, water, sand, gasoline, and such, are found in the apex of road curves because it is at this point they are spilled from cars and trucks. In addition, it is often impossible to detect this fact until your wheels begin to skid. . .a point at which it is sometimes too late to apply corrective action. Therefore, every precaution you take will reduce the total number of spills that could occur in a lifetime of riding.

In next month's second installment of "Driving in the Country," the author will discuss techniques of cornering, mountain driving, and special hazards facing the rural motorcycle rider. Meanwhile, you might want to talk to some experienced local motorcyclists to find out what special dangers they've encountered in your riding country. ●

continued from page 6

EXPERIMENT AT CAPE MAY

you'll get the chance to practice. Things like emergency stopping are not available in any other course I know about. It's really fun to put a car through its paces.

". . . 35 seems like a lot of speed to handle in an emergency situation. I wish the course lasted longer."—Dennis Edney, 20.

"It makes you feel you've got a good chance to get out of a dangerous situation. I've had three wrecks, so this information has real meaning to me. I always wear seat belts, both lap and shoulder. In fact, I won't give anybody a ride unless they buckle up.

"This training comes at a good time, and is much better than drivers' ed in High School. I've had a year's driving experience, so I can relate to what's being taught. I see now how my accidents could have been avoided."—Reid Susmark, 18.

THINGS TO COME

Needless to say, DRIVER was very impressed by the Drivers Training program at Cape May. The knowledge being passed on is all practical, life-saving information. The students recognize it as such, and absorb it quickly because of the chance to be behind the wheel for at least as many hours as are spent in the classroom. The training is competitive, challenging, and fun.

Not all drivers can be broken of their dangerous habits. Those who have severe limitations are privately apprised of this fact by the instructors, and counseled on how to modify their driving patterns to stay out of potentially dangerous situations. DRIVER hopes that some day this training will be available for *all* military personnel, regardless of age or previous driving experience. Until then, the Coast Guard is very fortunate to have this pilot program under its wings.

DRIVER plans another visit to Cape May in the near future. The Cape May instructors are anticipating receipt of a new training vehicle equipped with tires which can be blown out and reinflated by radio control (see photo), and roll bars. We plan to bring you information in future issues dealing with such problems as: how to handle a blowout, pedestrian evasion tactics, recovering from skids, methods used to avoid head-on collisions, plus other general information that will help you to survive. ●

Correct hand position, braking, and steering techniques are stressed in all exercises. They are especially important when recovering from an off-the-road situation. (U.S. Coast Guard photo)

This tire can be blown out and reinflated in a matter of seconds by radio control. It will be mounted with three other similar tires on a special roll-bar-equipped training car soon to arrive at Cape May. Students will then have the opportunity to practice controlling a vehicle with blowouts triggered by the instructor.

continued from page 7

MISS DRIVER

"You just can't depend on how your car will react, because it will have uneven traction. It's like wearing a rubber-soled shoe on one foot and a new leather sole on the other.

"A radial tire is built in such a way that when the front wheels are turned the tires immediately assume the new direction. Ply layers wrapped around the sidewall keep the radial from losing its profile, and the speed of tire rotation is not appreciably slowed. The conventional tire tread, however, flattens out in a turn, slowing tire rotation and diminishing the tread's squeegee action."●

About Miss DRIVER

see page 7

Blue-eyed, brown-haired Debbie Fogg of Rialto, California, is a two-time beauty contest winner at 18. She was crowned Eisenhower High School Homecoming Queen in 1972 (San Bernardino, Calif), and Miss Rialto in 1973. Debbie likes tennis, swimming, and bike riding, and hopes to work with handicapped children. The pretty Miss has been driving for 3 years, and told DRIVER, "I'm sure the safe-driving films I've seen at school, and the lectures I've heard, have been a good influence on my driving."●

Answer to "WHAT SHOULD YOU DO?"

(back cover).

The best answer is A. "Turn on your lights, signal, pull off the freeway and wait for the first opportunity to turn around."

When you turn on your lights, you alert the oncoming drivers that you are there and going the wrong way. By signaling, you've told them what your action will be, and they can take steps to avoid you. It is important to pull to the side of the freeway offering the safest route.

To "pull as far to the side of the freeway as you can and abandon your car" is only a partially right answer. You do want to get over to the side as quickly as possible; but stay with your car so that you can move out at the first opportunity. ●

the BACK-YARD MECHANIC

PART II

A quick inspection at home saves time and money

In last month's issue we discussed setting up a home work area, and suggested you begin your "back-yard" auto work with a thorough "once-over" of your car. So, this month we'll get into the specifics of a safety and reliability inspection.

A fairly complete auto inspection at least every 6 months is essential for safe and economical driving. Frequent inspections can save money by exposing necessary minor repairs before they become serious problems—and can keep faulty equipment from causing accidents.

For those people residing in states requiring safety inspections,* performing your own check before the state inspection can save time waiting for a reinspection. It can also save a lot of money by allowing you to repair faulty items, or replace them when they are on sale.

In California for instance, a violation discovered during a random roadside inspection must be corrected within 14 days; however, the vehicle is not supposed to be driven until the necessary repairs are made. If this seems a bit unfair, just remember, in most states you can be issued a traffic citation for vehicular safety violations such as a burned-out headlight.

** More than 30 states now require safety inspections at least annually. Other states operate random checks; and in some, city or county inspections are required.*

GET INTRODUCED

For you "not-so-mechanical" types, a complete auto inspection is a good way to acquaint you with your car, so you will be ready to move on to auto maintenance jobs to be discussed in future issues. You'll also be a better and safer driver by understanding how your vehicle works—and you'll have the satisfaction of knowing your car is in top shape.

A thorough inspection can be carried out at home in little more than an hour, using only the tools and equipment discussed last month.

LIGHTS

Get your owner's manual ready, and begin with a walk-around inspection—noting obvious problems such as a loose license plate or missing tire valve caps. Flip on the lights and check for burned-out headlights (both bright and dim), parking lights, and taillights. Try the turn signals—if they don't blink and the bulbs are not burned-out, the flasher is probably faulty. The flasher unit on most cars is a small metal canister that plugs in under the dash. Your manual will show the location of this inexpensive unit if you have trouble finding it. Hit the brake pedal a few times to be sure both brakelights operate. If a buddy is not available to help you, look for the reflection against a garage door to check the brakelights. Don't forget to put the car in reverse and check for burned-out back-up lights.

Replacement light bulbs and headlamps are available at most discount and auto stores. Burned-out bulbs can be replaced by removing the screws

Taillights and back-up lights are easily replaced by removing the outer lens—or, in some cases, they are removed through the trunk. Front parking lights and body side lights are sometimes reached from under the body.

from the outer lens (see picture). Sometimes the bulb must be reached from under the body, as in the case of body side lights. Tail and back-up lights are usually accessible from the trunk.

Headlights are equally easy to replace; but be sure to get the proper lamp. On a dual system (four headlights) there is a separate lamp for dim and for bright—note which lamp you need. On a single unit system (two headlights), where both bright and dim beams are in a single lamp, it's not quite so confusing—but you still have to get the proper lamp for your car. If you're unsure, take the old lamp with you when you go for a new one.

A burned-out headlight is replaced by removing the outer trim and loosening the lamp retaining screws (located around the edge of the lamp). Pull the wire connector plug loose from the back of the lamp, and you're ready to install the new light.

HEADLIGHT AIM

You'll probably need to align your headlights after replacing a lamp. Even if you don't replace any lights, headlight aim should be checked. Misalignment of the headlights is one of the most frequent causes of safety inspection failure.

Your owner's manual or service manual should give instructions and a headlight aiming pattern. If not, a blank wall and a roll of tape will suffice until you can get the lights adjusted at a service station. Drive the car up to a wall, then mark precisely where the lights (both bright and dim) shine. Back the car away 25 feet, and with someone in the driver's seat, adjust the lamps until they focus on the marked spots. The aiming adjusters on newer cars can be reached through the outer headlight trim (see picture). Older cars may require removal of the trim to adjust the lights.

Finish your exterior inspection by checking the wiper blades for wear. A blade which leaves rubber sticking to the glass is ready for replacement. If the windshield washer seems to lack pressure, remove the reservoir and clean the strainer screen—dirt in the screen often impedes washer flow. Don't forget to check the aim of the washers and top-off the reservoir with the proper solvent mixture.

INSIDE THE CAR

Be sure the heater and defroster work. If the fan fails to operate—look for a blown fuse at the terminal fuse box. Check steering wheel play by turning the wheel slowly until the front wheels move. There should not be more than 3 inches of free play—if there is, you're probably in need of new tie rods or other steering system repairs. These should be done by a qualified mechanic. Tighten the seat belt mountings, and be sure the seats are fastened securely to their tracks.

If the horn doesn't work, this is the time to fix it. Locate the wire connector at the horn—pull it loose and hook one lead of a test light to a ground. Probe the connector with the other light lead while someone pushes the horn button or ring. If the test light glows, the horn is shot. If the test light fails to glow, the problem is a faulty relay or switch. Pull the connector at the horn relay (usually located near the front wheel along the inside of the engine compartment) and probe it while someone operates the horn. If the light glows, the relay is bad. If it doesn't, the problem is at the horn switch.

UNDER THE HOOD

Raise the hood and check the cooling system. Replace the radiator and heater hoses if they feel mushy, are cracked, or show signs of leaking. The clamps should be tight, but not so tight they cut into the hoses.

Carefully release any pressure from the radiator, remove the cap and check the coolant level. If the liquid is rusty or discolored, you should flush and replenish the system with the proper antifreeze-coolant mixture, following the instructions in your manual. Brown sludge developed around the filler neck means you'll probably need to take your car in for a radiator back-flush.

Replace any drive belt which shows signs of wear. A belt having ½-inch or more of play halfway between the pulleys should be tightened by loosening the component, holding it, and exerting pressure to tension the belt. If a pry bar is needed to adjust the belt properly, be sure not to put the end of the bar under anything delicate—such as the outside frame of an alternator or the power steering fluid reservoir.

The battery is an item which should have constant inspection and care—and this is a good opportunity to make sure the battery case is clean, and the terminals are corrosion free, tight, and coated wtih petroleum jelly to inhibit recurring corrosion. Also, check the battery water level.

BRAKE FLUID ESSENTIAL

Be *extremely* cautious of the brake fluid reservoir—low fluid could mean a leak in the brake system. . .and a leak could spell disaster in the form of a brake failure. The fluid reservoir is located, with the master cylinder, near the fire wall (see picture). If the fluid is not up to the recommended level, check for leaks around the master cylinder and at the brake line connections. Leaks anywhere in the brake system should be taken care of immediately. If you're unsure of where the leak is, or the proper repair procedure, it is best to leave this to a reputable brake shop or mechanic.

EMISSION SYSTEM

Remove your carburetor air filter and look for black, oily deposits—these, as well as rough low-speed idle and operation indicate problems in your exhaust emission system. A malfunction in the emission system is usually caused by a plugged positive crankcase ventilation

continued

Headlight aiming adjusters can be reached through the headlight trim on newer cars—but most older cars require removal of the outside trim to adjust the headlights.

Hoses and belts are items which cause more car problems than any other parts. Replace hoses that feel mushy, are cracked, or show signs of leaking. Tighten belts that have more than ½-inch of play—if the belt is tight enough, but still squeals or slips, it is probably glazed on the inside—replace it.

The PCV valve is the emission system part most likely to cause problems. Pull it loose from its mounting and shake it—if it doesn't click, replace it. Black oily deposits on the air filter, or rough low-speed operation indicate problems somewhere in the emission system that should be taken care of.

The automatic transmission dip stick (usually located near the fire wall) should be checked frequently. The fluid should be reddish in color—any other color, or fluid that smells like varnish, indicates transmission problems. Check your owner's manual for the correct procedure for checking the fluid level.

continued

THE BACK-YARD MECHANIC

(PCV) valve or a damaged hose. Find the PCV valve, usually located in the rocker arm cover or intake manifold (see picture), and shake it—it should click. If not, replace it. Start the engine and hold your finger over the open end of the valve, you should feel a strong suction. If not, check the hose for cracks or kinks.

TRANSMISSION

The automatic transmission is one final area of concern under the hood. Most people wait until shifting problems develop before they even think about the transmission. . .by then it is often too late to avoid expensive repairs. Locate the transmission dipstick, usually hidden behind the engine near the fire wall (see picture). Refer to your owner's manual for the proper procedure for checking the fluid level—this is usually done with the engine warm and idling, and the selector in "Park."

The fluid should have a reddish color; if it is orange or black, or smells like varnish, the shifting bands may be starting to fail. The problem can still be rectified with the proper maintenance. DRIVER will feature an entire article on automatic transmission maintenance in the near future. Meanwhile, have your car checked by an expert if you suspect such problems.

CONSULT MANUALS FOR PROPER PROCEDURES

SHOCKS

Now you're about to get under the car and into the final, but more complicated checks. But, before putting the car up on safey stands, check the shock absorbers. All shocks sweat, but excessive fluid on the outside of a shock means it is worn out. Also, if a hard push down on the front or rear of the car produces more than three bounces before the car stabilizes, better check into new shocks. See "You, the Mechanic!" Part 8, Nov '71 DRIVER.

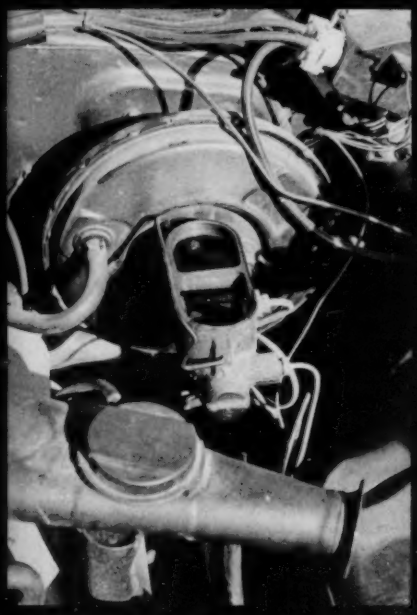
UNDER THE CAR

Carefully jack up the front-end and place it securely on safety stands—don't forget to chock the rear wheels. If you don't have a buddy helping you, it's a good idea to let someone know you'll be working under the car so they can check on you periodically. . .just in case.

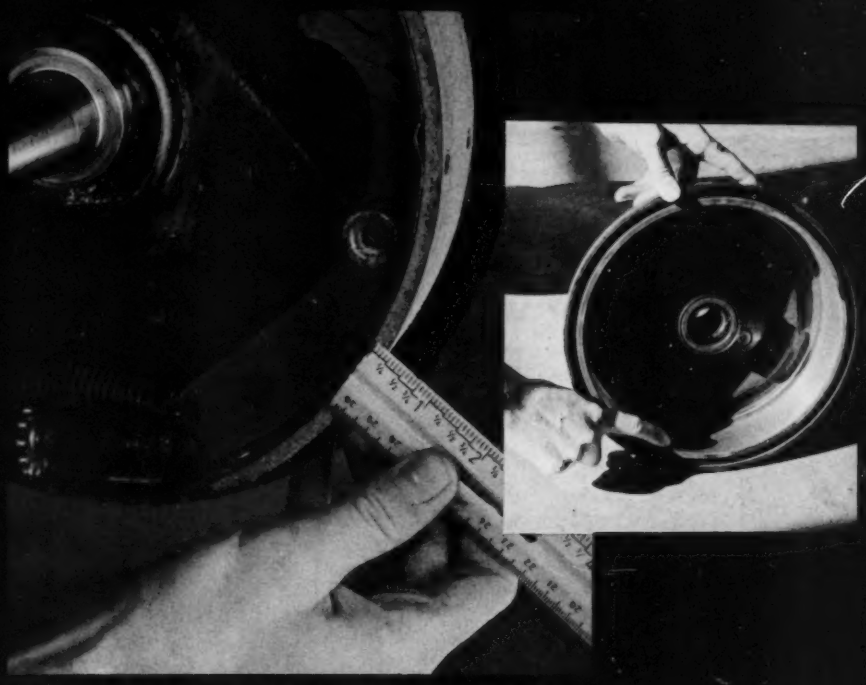
The first thing you'll want to do is trace all the brake lines from the master cylinder to the wheels, looking for fluid leaks. Next, check the transmission, clutch, and differential fluid levels by opening the plugs located on the side of the housings. Your owner's manual will show their locations and give lubricant specifications.

Check the exhaust system for leaks by placing your hand around the joints with the engine running (before it gets hot). A leak can be felt. Leaking joints can be sealed by tightening the clamps or by covering the joints with a special sealer. Tap the muffler and pipes with a wrench; a dull clank indicates metal ready to rust through and in need of replacement.

With the wheels off the ground, try to rock each wheel from top to bottom, and side to side. More than ¼-inch of play indicates a loose or worn wheel bearing. Remove the wheel hub and tighten the lock nut to the correct speci-



The brake fluid reservoir is part of the master cylinder—located near the fire wall opposite the steering wheel. Check the fluid level after cleaning all dirt and gunk from the reservoir top. If the fluid is low, look immediately for leaks in the system—the fluid has to have gone somewhere.

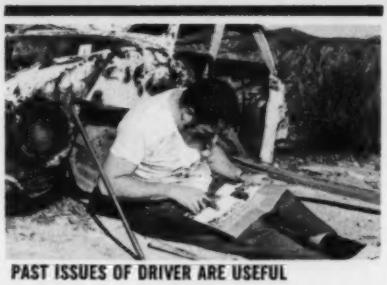


Brakes are one of the most critical areas for inspection. Brake shoes should have at least 1/32-inch of lining above the rivets, or above the shoes on bonded linings. Disc brakes should also be measured for pad thickness—your owner's manual will give the recommended thickness. Brake drums should be evenly worn and free of large scratches or grooves. Worn drums can be machined and reused, but excessively or unevenly worn drums should be replaced.

fications. If the wheel is still loose, the bearings probably need to be replaced. Excessive play in the wheels, when lifted up from the bottom with a bar or lever, indicates ball joint or king pin problems. If you suspect this, better have the car immediately checked out by a reputable front-end specialist. Check the steering system by shaking the idler and Pitman arms. Twist the tie rods. (Some are designed to turn—notice which kind you have.) (See picture). Any movement or looseness may be serious—see a specialist.

BRAKES

The final and probably most important checks are the brakes and tires. With the front wheels removed, disc brakes can be measured for pad thickness. Your manual will give procedures for this, as well as the minimum thickness before the pads need to be replaced. On older cars with drum brakes, you will have to remove the drum to inspect the brake linings. Consult your manual for the proper removal procedure. The drum should be smooth with no large scratches. If the drums are excessively worn, you should take them to a shop for turning. There should be at least 1/32-inch of lining above the rivets on riveted shoes, or above the shoe on bonded linings. If the linings are worn beyond this point, or worn unevenly, you'll need to replace the shoes. Lift up the edge of the rubber cup over the end of the wheel cylinder and check for fluid leakage. If leakage is occurring, you need to have the cylinders rebuilt. Anything appearing unusual during this inspection is reason for a thorough professional brake inspection.



PAST ISSUES OF DRIVER ARE USEFUL

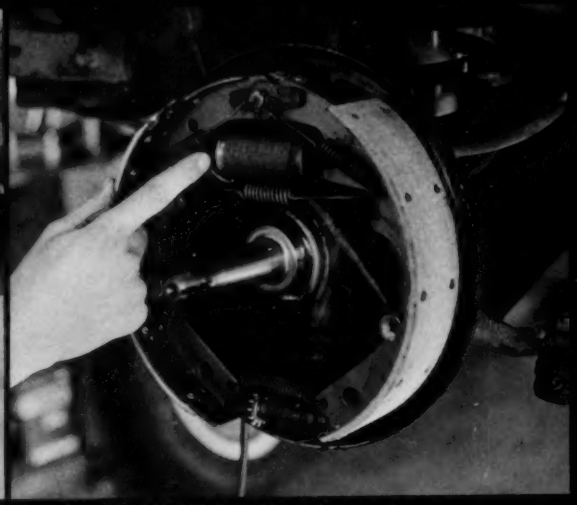
The rear brakes should also be checked. However, rear drum removal often requires special wheel pullers. If you don't have the knowledge and equipment for the job, your mechanic can pull the rear drums and inspect the linings for you. Even though the front brakes usually wear first, many people replace only the front shoes when they do a brake job. So, your rear linings may be shot even when your front shoes look new.

CHECK FOR UNUSUAL WEAR PATTERNS

TIRES

Tires are always critical—inspect them for tread depth and uneven wear patterns caused by out-of-balance wheels or a misaligned front-end. Unusual wear patterns are a good indication of the need for a trip to a balance and front-end shop. Tires should have at least 2/32-inch of tread at every groove. A good way to check this is inserting a Lincoln-head penny, head first, into the tread. If rubber doesn't at least come to Abe's head, you'd better look for a tire sale. Maintaining proper air pressure is the best way to stretch tire mileage. If you don't have a good tire gage, you should get one and use it often.

continued



Brake lines are another important element of the brake system. Lines should be traced from the master cylinder to the wheels, checking for leaks. The wheel cylinders can be checked for leaks by pulling back on the rubber cups. A leaking wheel cylinder must be rebuilt or replaced.

continued

THE BACK-YARD MECHANIC

ROAD TEST

If everything has checked out so far, hit the road for a performance analysis and final brake check. Make several "panic stops" in a traffic-free area. Any excessive pulling, noise, or brake fade is reason for an expert brake

MAKE SEVERAL "PANIC STOPS" . . .

inspection. You can check brake balance by locking your brakes at 5 mph on a dirt or gravel surface. All four skid marks will be about equal in length if your brakes are balanced.

If your engine's performance is a little down, you might try taking your car to an automotive diagnostic center. See "Give Your Car a Clean Bill-of-Health," Dec '72 DRIVER. A diagnostic test will give you a complete performance rundown, so you'll know exactly what engine parts need adjustment or replacement—and it will confirm the findings of your safety inspection. •

The steering system is an area of great concern. Shake the Pitman arm, idler arm, and twist the tie rods. Any movement could be serious—have the car checked out by a front-end specialist. Some tie rods are designed to move, however, so check the manual to be sure which type you have.

"Now if I just had a good detailed article on body and fender work!"

Pickup Owners: BEWARE OF THE LOAD FROM BEHIND

Did you know that a "loaded bed" on your pickup truck can wipe you out?

It's true. An emergency stop, even from a speed of 30 mph, could slam an unsecured load through the back of the cab and into the passenger compartment. Unsecured weight in a truck bed continues straight ahead at the original truck speed if the brakes are slammed on. If the weight is heavy and hard enough, it will crash through the rear of the cab and zap you.

Many pickup truck operators add weight to their empty truck beds to improve rear-wheel traction, particularly in winter. The idea is fine, but simple precautions are called for. No matter what material you use to load that bed, make certain it is *securely* tied down; fore, aft, and sideways.

If you use too much weight, however, it will take some of the load off the front wheels, and you need their traction for steering and stopping. About 300 to 500 pounds, placed directly over the rear axle, should be enough.

The best material to use is salt or sand in frangible bags. The bags will burst if they break loose and strike the rear of the cab. Keep the bags dry and, again, *solidly* tied down—in all directions.

Never let it be said that you got zapped from behind by a "loaded bed."●

(Information provided by W. Mont Speas, OOAMA/MMROB, Hill AFB, Utah).

Owner's Manual

Remember that old line, "When all else fails, read the directions"? Well, before you reach that unhappy state of affairs with your new car, read the owner's manual that came with it.

If you buy a used car, and the manual is missing, ask the dealer to get one for you. If he doesn't have one on hand, he can order one from the factory. If you've already purchased the car, you can order one from a parts catalog or through a parts house for around $5.00. Although the warranty may have expired, the manual will still be well worth having.

If you read the manual carefully, and take a look at each piece of equipment described in that wonderful little booklet, you will have a better understanding of your car and how it operates; then, too, you will be a better driver.

Today's owner's car manuals are the result of great effort, cost, and research by the manufacturers. They contain a wealth of information that every driver should know and understand. They are written in a simple, easily understood style, and are well illustrated.

The manufacturer knows his cars better than you do. He knows the periodic maintenance and inspections that have to be performed, and he tells you all about them. Also, remember much of this information has to do with the guarantee and how to keep it in effect. The manufacturer knows the correct tire pressures for different loads, and what type of gasoline to burn for optimum performance. He knows all about the electrical, hydraulic, and cooling systems—and tells you a lot about them.

Don't confuse the owner's manual with the shop manual you can order through the dealer. The shop manual is written for the serious mechanic, and goes into lengthy and complicated details on repairs, etc.

The owner's manual will tell you how to start the engine under various weather conditions; how to brake; how to drive on ice or snow; how to operate the radio, heater, and air conditioner; how to turn on the various lights —even how to tow a trailer. There is also a section on tires and their care, and a section on elementary troubleshooting. You will find simple line drawings or photos to help you better understand the instructions.

Don't shove the owner's manual into the glove compartment and forget about it. If you follow its recommendations faithfully, you will prolong the life of your car and add to your driving pleasure. ●

LETTERS TO THE EDITOR

BACKFIRE

Address your letters to:
Editor
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409

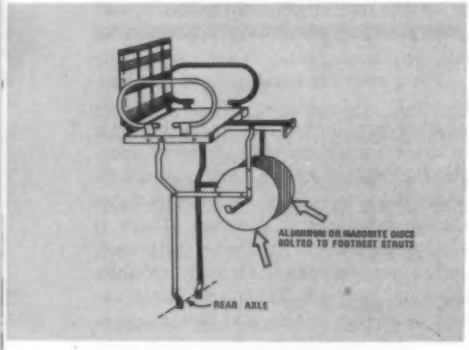
UNSAFE CHILD'S BIKE SEAT

Your photo of the child's bicycle seat in "Bicycle Survival," Oct '72 DRIVER, shows an extremely unsafe seat. It does not have any device to keep the child's feet out of the rear-wheel spokes.

Please emphasize this hazard in a future issue, since there are many such unsafe seats on the market today. A simple drawing of a pair of foot protector panels that could be fabricated at home or in a base hobby shop might save some kid's foot from being caught in the spokes.

Capt Bryce D. Seegar
Comdr, Det 1, 87 FIS
Volk Field, Camp Douglas WI 54618

You are so right, Captain. Here's our artist's version of your suggested mod.



SPANISH MOTORCYCLE LICENSES

In order to drive a motorcycle in Spain, you must have either a Spanish or an International driver's license or a translation of your valid stateside license. In any case, the license has to be certified for motorcycle driving. A good source for the International license is the AAA. An International license, however, is not valid in the country of issue.

DRIVER magazine is widely read here. It is a great mag. Keep up the good work.

SSgt William H. Marshall, Jr
1989-5 Comm Det
APO New York 09401

Thanks for the info and for the kind remarks about DRIVER.

ANOTHER HITCHHIKING FATALITY

Request permission to reprint DRIVER magazine's "Hitchhiking" article, Oct '72 issue, in our weekly base newspaper.

Due to recent circumstances, the Command felt it necessary to include information concerning the pros and cons of picking up riders, and your article was a very concise report on the subject. We have just experienced the death of a local Marine who was the victim of two hitchhikers.

The reprint of your article will appear in the 5 Jan '73 issue of our "Windsock." Thanks for your help.

1st Lt K. R. Dobrovolny
2d Marine Acft Wg
FMFLant and Marine Corps AS
Cherry Point NC 28533

You certainly may reprint the article written by DRIVER's Navy contact!

TRACTIONIZED TIRES

Your Oct '72 "Winter Is Here" dealt with some of the winter driving aids, but not abrasive-grip tires. I'd like to know more about them.

CMSgt Don D. Burroughs
4428 Midway Road
Duluth MN 55811

Our Goodyear Tire Co contact tells us "tractionized" tires are retreaded with a mixture of rubber and crushed walnut shells or walnut wood sawdust. They give better traction than ordinary snow tires, especially on ice, but are not as efficient as studded tires; and, while they cost from $8 to $10 less than studded tires, they last only about 2/3 as long.

TOP-RATED MAGAZINE

I am amazed at the amount of usable information your staff can compress into DRIVER. I rate your magazine as second to none, even though I am an avid reader of other automotive publications.

SSgt Charles A. Carlo
4th Mun Maint Sq
Seymour Johnson AFB NC 27530

Your letter made the day for our staff, Sarge!

SAILOR BEWARE

Your caption in the July '72 article, "Cast Off With Care," was a shocker. Sail boats have the right-of-way because they depend on the wind for maneuverability.

Lt Edwin M. Cox
USCGC BASSWOOD (WLB-388)
FPO San Francisco 96601

We were trying to emphasize the danger of maintaining a course in the face of disaster, such as a sailboat on a collision course with a large power boat or ship.

WRINGING THE DIAPERS

I was just reading the December '72 issue of DRIVER. The article on overheating (p. 9) brought to mind several hints which may prove as valuable to your other readers as they have to me. (1) If the "hot" light goes on, particularly on a long grade with a heavy load and you aren't able to stop, turn the heater on full, with the heater fan running. The heater core acts as an additional radiator, and will lower the engine temperature quite rapidly. (2) After you are able to stop, keep the engine idling and pour water over the front of the radiator. The flowing water will cool the radiator core, which will in turn cool the water inside the radiator. You can use dirty water from a roadside ditch, water from the ice chest, or the wringing from the baby's diapers for this purpose, since it's on the outside of the radiator.

I have had to resort to these methods on occasion with my old '63 high-compression six Ford Van going up Devil's Canyon grade in Southern California, and also up the "Grapevine" —and they work!

LCDR David S. Kruger
Bldg 711, Naval Tng Ctr
Great Lakes IL 60088

Thanks for the tips, Commander. We count on the Navy to know how to use water to best advantage.

JUMBO HIGHWAY FATALITIES

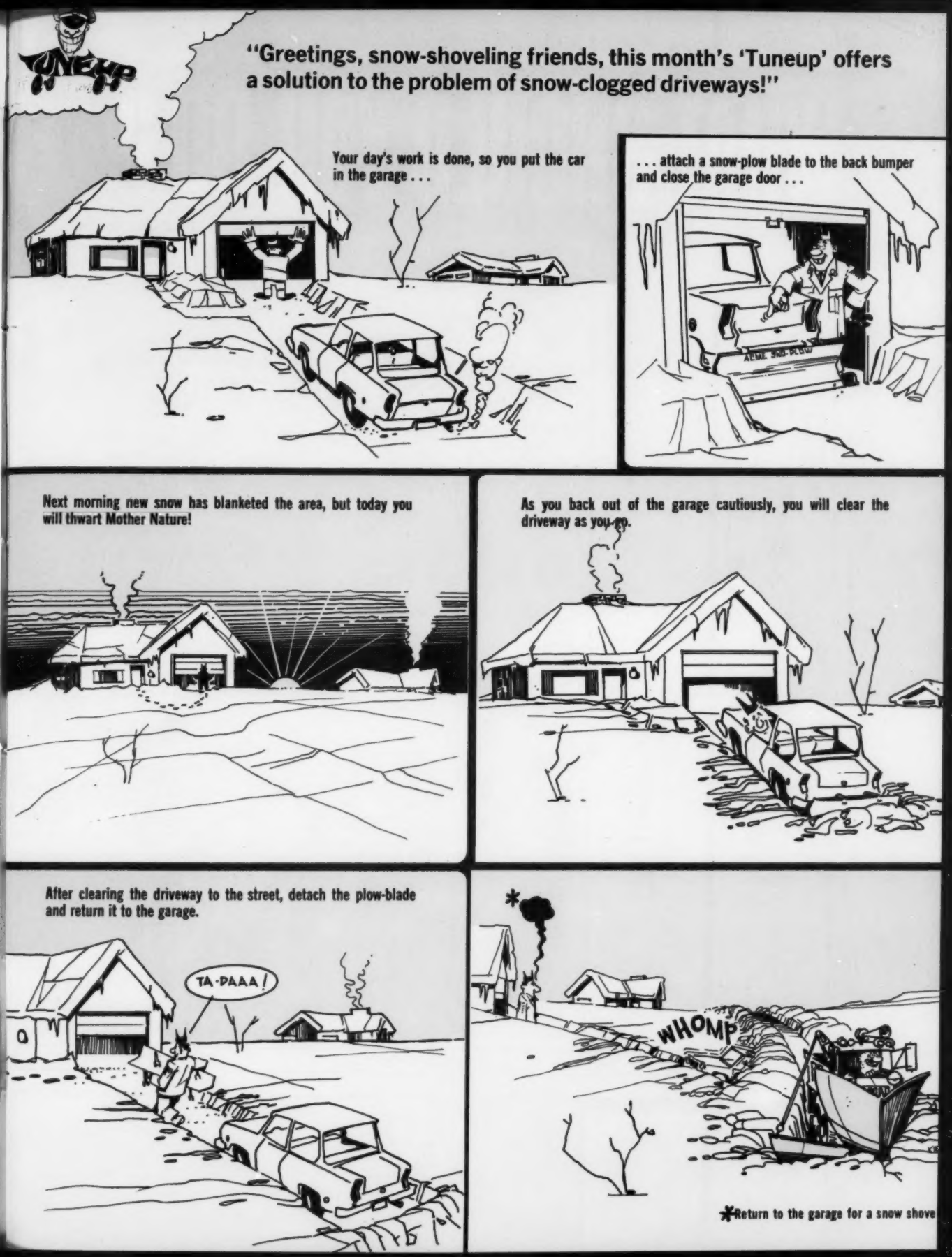
A jumbo jet can easily carry 250 people. Should one crash, it would make headlines! Should two crash in one week, the result would be national alarm! Should three crash, there would be a world-wide cry for prevention!

Yet, if a jumbo jet were to crash every other day all year long, and all aboard were killed. . .the toll would still be less than the annual number of highway deaths in the United States alone. Think about it!

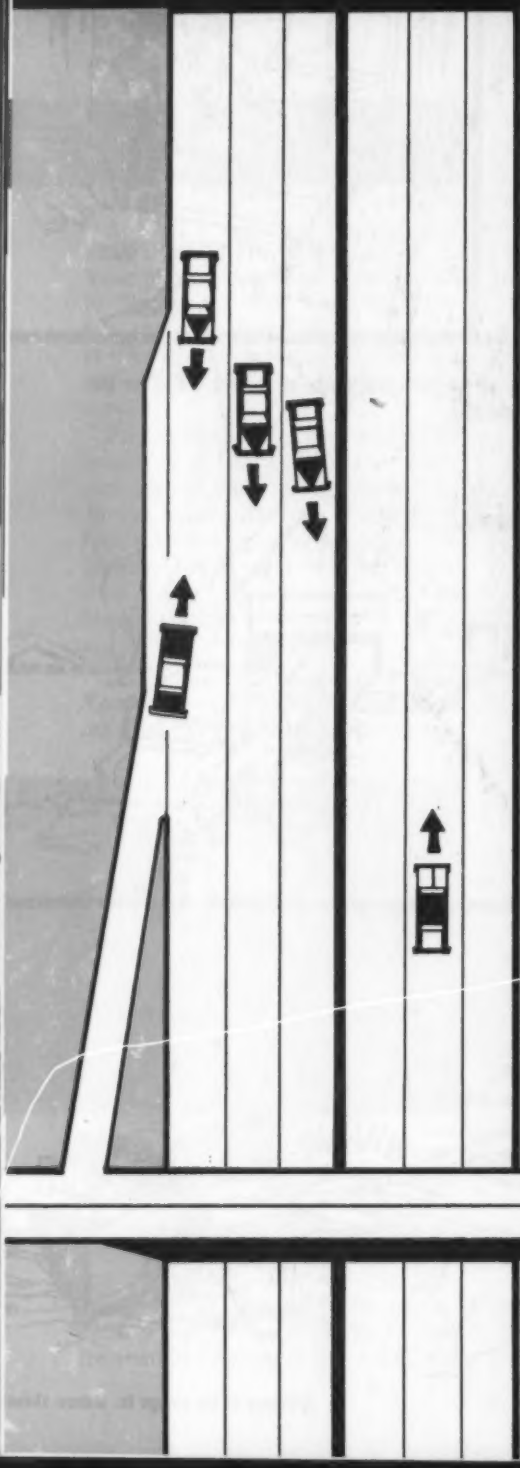
R. J.
Norton AFB CA 92409

We certainly will.

☆U.S. GOVERNMENT PRINTING OFFICE: 1973—789-416/5


TUNEUP
"Greetings, snow-shoveling friends, this month's 'Tuneup' offers a solution to the problem of snow-clogged driveways!"
Your day's work is done, so you put the car in the garage . . .
. . . attach a snow-plow blade to the back bumper and close the garage door . . .
ACME SNO-PLOW
Next morning new snow has blanketed the area, but today you will thwart Mother Nature!
As you back out of the garage cautiously, you will clear the driveway as you go.
After clearing the driveway to the street, detach the plow-blade and return it to the garage.
TA-DAAA!
WHOMP
*Return to the garage for a snow shove

WHAT SHOULD YOU DO?



You have really goofed this time by turning onto an off-ramp instead of an on-ramp to a freeway. You are up on the freeway before you realize what you have done. There are cars coming straight at you, but there is sufficient time to react. What should you do?

A Turn on your lights, signal, pull off the freeway and wait for the first opportunity to turn around.

B Pull as far to the side of the freeway as you can and abandon your car until the traffic clears.

(See answer on page 21)